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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/599,269 06/22/00 ROSE

S OF-102US

024314 IM22/0628
JANSSON, SHUPE & MUNGER, LTD
245 MAIN STREET
RACINE WI 53403

EXAMINER

QCAMPD, M

ART UNIT

PAPER NUMBER

1723

DATE MAILED:

06/28/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/599,269

Applicant(s)

ROSE ET AL.

Examiner

Marianne S. Ocampo

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

DETAILED ACTION

Specification

1. The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material in *PCT Patent Publication WO 98/07905*, which had been incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 14 - 17 and 23 - 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a). Claim 14 recites the limitation "the lower end of the softening temperature of the high-density polyethylene filter material" in lines 2 - 3. There is insufficient antecedent basis for this limitation in the claim. Since the previous claims (such as claim 1 or 10 or 13) from which claim 14 depends therefrom had not defined what the softening temperature range of the high-density polyethylene is, nor the type of high density polyethylene used as the filter material, it is unclear what would be the lower end of that softening temperature range is.

b). Claims 15 - 17 are dependent claims of claim 14, and thus, they also suffer the same defects since they depend therefrom.

c). Claim 24 recites the limitation "the lower end of the softening temperature of the high-density polyethylene filter material" in lines 2 - 3. There is insufficient antecedent basis for this limitation in the claim. Since the previous claim 23 from which claim 24 depends therefrom had not defined what the softening temperature range of the high-density polyethylene is, nor the type of high density polyethylene used as the filter material, it is unclear what would be the lower end of that softening temperature range is.

b). Claims 25 - 27 are dependent claims of claim 24, and thus, they also suffer the same defects since they depend therefrom.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 – 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ashelin et al. (US 5,154,827) in view of product pamphlet, Dupont TYVEK – “The Medium that fits a wide variety of filtration needs”.

With respect to claim 1, Ashelin et al. (827) disclose a pleated filter cartridge (11) for removing particulates/foreign matter from a liquid of the type including a perforated core (23), a pair of end caps (27, 29) and an annular filter element (15) around the core (23) formed by substantially axially-parallel pleats of at least one sheet of filter material, wherein the filter material is a non-perforated, non-woven material of a fluorocarbon polymer, and the filter element (15) having opposite ends each in sealing engagement with one of the end caps (27, 29), as in figs. 1 – 3 and col. 4. However, Ashelin et al. fails to disclose the filter material being a non-perforated, non-woven material of flash-spun plexifilamentary high density polyethylene fibrils, and the material having a pressure drop of less than 4 psid at a flow rate of 10 gal/hr and a

filtration efficiency of at least 98% of 1 – 2 micron particulates at a pressure differential of 30 psid. The DuPont product pamphlet teaches a filter material called "TYVEK SoloFlo", which is a non-perforated, non-woven material of flash-spun plexifilamentary high density polyethylene fibrils, and the TYVEK SoloFlo filter material having a permeability of 1.3 psid, which is included in the range of pressure drops of less than 4 psid at a flow rate of 10 gal/hr, and the TYVEK SoloFlo material having a (liquid) filtration efficiency of 99.98 %, which is included in the range of filtration efficiencies of at least 98% of 1 – 2 micron particulates at a pressure differential of 30 psid, as in pages 2 – 3 of the publication pamphlet, "DuPont TYVEK – The Medium that fits a wide variety of filtration needs". It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the filter material of the pleated cartridge of Ashelin et al., by substituting it with the filter material (TYVEK SoloFlo) taught by the DuPont reference, in order to provide an improved pleated filter cartridge having a filtering element which is capable of removing particulates from a liquid at an efficiency of at least 99.98%, has improved permeability and porosity and dirt-holding capacity.

6. Regarding claim 2, the DuPont product pamphlet further teaches TYVEK SoloFlo filter material having a permeability of 1.3 psid, which is included in the range of pressure drops of less than 1.5 psid at a flow rate of 10 gal/hr, and the filtration efficiency being 99.98%, which is in the range of at least about 99%, as in pages 2 – 3.

7. Concerning claim 3, the DuPont product pamphlet also teaches TYVEK SoloFlo filter material having a mean flow pore size of 4.80 microns, which is greater than 4 microns, while its nominal pore filtration rating is 1 micron, as also in pages 2 – 3.

8. With respect to claim 4, the DuPont product pamphlet teaches the Gurley Hill porosity rating of the TYVEK SoloFlo filter material being 5 sec/100cc, which is not greater than about 5 sec/100cc, as in pages 2 – 3.

9. Regarding claim 5, the DuPont product pamphlet teaches the TYVEK SoloFlo filter material having a thickness of 5.1 mil (0.12954 mm), which is less than about 0.15 mm, as in pages 2 – 3.

10. Concerning claim 6, the DuPont product pamphlet teaches the thickness of the TYVEK SoloFlo filter material being 5.1 mil or 0.12954 mm, which is less than 0.13 mm, as in pages 2 – 3.

11. Regarding claim 7, the DuPont product pamphlet teaches the TYVEK SoloFlo filter material having a basis weight of 1.25 oz/yd² (0.04238 kg/m²), which is less than about 45 g/m², as in pages 2 – 3.

12. Concerning claim 8, as already mentioned above, the DuPont product pamphlet teaches the TYVEK SoloFlo filter material having a thickness of 5.1 mil (0.12954 mm), which is less than about 0.15 mm, as in pages 2 – 3.

13. With respect to claim 9, the DuPont product pamphlet teaches the thickness of the TYVEK SoloFlo filter material being 5.1 mil or 0.12954 mm, which is less than 0.13 mm, as in pages 2 – 3.

14. Concerning claim 10, Ashelin et al. disclose the filter element (15) having at least two layers including at least one mesh layer (17 or 19) with the filter material (21) therebetween, as in fig. 1 and col. 4.

15. Regarding claim 11, Ashelin et al. further disclose one of the mesh layers (19) being disposed between the filter material (21) and the core (23), as in fig. 1.

16. With respect to claim 12, Ashelin et al. disclose a single layer of filter material (21) serving as the sole filtering layer, as in fig. 1.

17. Concerning claim 13, Ashelin et al., as modified by DuPont TYVEK, fail to disclose the mesh layer being a low density polyethylene. Low density polyethylene meshes/mesh layers are known in the art for their flexibility and corrosion resistance compared to metallic mesh

layers/meshes. It is considered an obvious modification to substitute the material of construction of the mesh layer (19 or 17) of the pleated filter element (15) of Ashelin et al. for that of a low density polyethylene (LDPE), in order to provide an alternative mesh support layer which has improved/desirable qualities such as increased flexibility and corrosion resistance, compared to its metallic counterparts. A good mesh layer, such as those made of LDPE, for supporting a filter material, should have greater flexibility in order to give room for the expansion of the filter material during the filtration process, and corrosion-resistance to prevent easy damage due to extensive exposure to moisture or corrosive fluids in filtration applications.

18. Regarding claim 14, although Ashelin et al., as modified by the TYVEK SoloFlo product pamphlet by DuPont, fails to disclose the polyethylene mesh having a softening temp. range lower than the lower end of the softening temp. range of the high density polyethylene filter material and is tack-point interconnected to the filter material without having compromised the filter material, it is considered known in the art that low density polyethylenes (LDPEs) have lower melting points than high-density polyethylenes (HDPEs), and from this, it is obvious that the mesh formed of LDPEs would have a softening temperature range lower than the lower end of the softening temp. range of HDPE filter material. Ashelin et al. further disclose the filter material (21) having end edges or surfaces being premelted/sealed to/bonded (tack-point interconnected) to the mesh layer (17, 19) to form a single edge of the mesh and filter material, as in figs. 5 - 6 and col. 9.

19. Concerning claim 15, Ashelin et al, as modified by the TYVEK SoloFlo product pamphlet by DuPont, fails to disclose the mesh layer and the filter material being tack-point connected prior to pleating. Claim 15 is an example of a product by process claim. The patentability of the product by process claim is based upon the product itself, even though the claim is limited and defined by process, and therefore, the product in such a claim is unpatentable if it is the same as, or obvious from the product of the prior art, even if the product of the prior art had been made by a different process. See *In re Thorpe, et al.*, No. 85-1913 (11-21-85) 227 USPQ pages 964 – 966. In this instance, the product of Ashelin et al, as modified by the TYVEK SoloFlo product pamphlet by DuPont, is considered the same, if not an obvious modification of the product of the claimed invention, since it meets all the structural limitations of the claimed invention/product (pleated filter cartridge) except for the process step of tack-point interconnecting of the mesh layer and the filter material prior to pleating.

20. With respect to claim 16, Ashelin et al, as modified by the TYVEK SoloFlo product pamphlet by DuPont, fails to disclose the mesh layer and the filter material being tack-point connected after pleating. Claim 16 is an example of a product by process claim. The patentability of the product by process claim is based upon the product itself, even though the claim is limited and defined by process, and therefore, the product in such a claim is unpatentable if it is the same as, or obvious from the product of the prior art, even if the product of the prior art had been made by a different process. See *In re Thorpe, et al.*, No. 85-1913 (11-21-85) 227 USPQ pages 964 – 966. In this instance, the product of Ashelin et al, as modified by

the TYVEK SoloFlo product pamphlet by DuPont, is considered the same, if not an obvious modification of the product of the claimed invention, since it meets all the structural limitations of the claimed invention/product (pleated filter cartridge) except for the process step of tack-point interconnecting of the mesh layer and the filter material after pleating.

21. Concerning claim 17, Ashelin et al. as modified by the TYVEK SoloFlo product pamphlet by DuPont, fails to disclose the softening temperature range of the mesh layer being within the range of about 170 – 195° F. It is considered an inherent property of the LDPE used to form the mesh layer to have a softening temperature range below its melting point (which is known in the art to be around 200° F), that is below 200° F, which include those values within the range of about 170 – 195 ° F.

22. With respect to claim 18, Ashelin et al. further disclose a containment sleeve (25) of polyethylene netting/cage enclosing the annular filter element (15), as in fig. 1 and col. 4

23. Concerning claim 19, Ashelin et al. also disclose the core (23) and the end caps (27, 29) are of polyethylene, as in fig. 1 and col. 4.

24. With respect to claim 20, Ashelin et al. further disclose a containment sleeve (25) of polyethylene netting/cage enclosing the annular filter element (15), as in fig. 1 and col. 4

25. Concerning claim 21, Ashelin et al. also disclose the core (23) and the end caps (27, 29) are of polyethylene, as in fig. 1 and col. 4.

26. Regarding claim 22, Ashelin et al. disclose a single layer of filter material (21) serving as the sole filtering layer, as in fig. 1.

27. With respect to claim 23, Ashelin et al. disclose an annular pleated filter cartridge (11) formed by substantially parallel pleats of at least one sheet of filter material (21) and at least one mesh layer (17, 19) formed of a polyethylene (I.e. PTFE, which is a form of polyethylene) material, as in fig. 1 and col. 4. However, Ashelin et al. fail to disclose the filter material being a non-perforated, non-woven material of flash-spun plexifilamentary high density polyethylene fibrils, and the material having a pressure drop of less than 4 psid at a flow rate of 10 gal/hr and a filtration efficiency of at least 98% of 1 – 2 micron particulates at a pressure differential of 30 psid, and the material for the mesh layer is of a low density polyethylene. The DuPont product pamphlet teaches a filter material called "TYVEK SoloFlo", which is a non-perforated, non-woven material of flash-spun plexifilamentary high density polyethylene fibrils, and the TYVEK SoloFlo filter material having a permeability of 1.3 psid, which is included in the range of pressure drops of less than 4 psid at a flow rate of 10 gal/hr, and the TYVEK SoloFlo material having a (liquid) filtration efficiency of 99.98 %, which is included in the range of filtration efficiencies of at least 98% of 1 – 2 micron particulates at a pressure differential of 30 psid, as in pages 2 – 3 of the publication pamphlet, "DuPont TYVEK – The Medium that fits a wide variety

of filtration needs". It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the filter material of the pleated cartridge of Ashelin et al., by substituting it with the filter material (TYVEK SoloFlo) taught by the DuPont reference, in order to provide an improved pleated filter cartridge having a filtering element which is capable of removing particulates from a liquid at an efficiency of at least 99.98%, has improved permeability and porosity and dirt-holding capacity. In addition, Ashelin et al., as modified by DuPont TYVEK, fail to disclose the mesh layer being a low density polyethylene. Low density polyethylene meshes/mesh layers are known in the art for their flexibility and corrosion resistance compared to metallic mesh layers/meshes. It is considered an obvious modification to substitute the material of construction of the mesh layer (19 or 17) of the pleated filter element (15) of Ashelin et al. for that of a low density polyethylene (LDPE), in order to provide an alternative mesh support layer which has improved/desirable qualities such as increased flexibility and corrosion resistance, compared to its metallic counterparts. A good mesh layer, such as those made of LDPE, for supporting a filter material, should have greater flexibility in order to give room for the expansion of the filter material during the filtration process, and corrosion-resistance to prevent easy damage due to extensive exposure to moisture or corrosive fluids in filtration applications.

28. Regarding claim 24, although Ashelin et al., as modified by the TYVEK SoloFlo product pamphlet by DuPont, fails to disclose the polyethylene mesh having a softening temp. range lower than the lower end of the softening temp. range of the high density polyethylene

filter material and is tack-point interconnected to the filter material without having compromised the filter material, it is considered known in the art that low density polyethylenes (LDPEs) have lower melting points than high-density polyethylenes (HDPEs), and from this, it is obvious that the mesh formed of LDPEs would have a softening temperature range lower than the lower end of the softening temp. range of HDPE filter material. Ashelin et al. further disclose the filter material (21) having end edges or surfaces being premelted/sealed to/bonded (tack-point interconnected) to the mesh layer (17, 19) to form a single edge of the mesh and filter material, as in figs. 5 – 6 and col. 9.

29. Concerning claim 25, Ashelin et al, as modified by the TYVEK SoloFlo product pamphlet by DuPont, fails to disclose the mesh layer and the filter material being tack-point connected prior to pleating. Claim 25 is an example of a product by process claim. The patentability of the product by process claim is based upon the product itself, even though the claim is limited and defined by process, and therefore, the product in such a claim is unpatentable if it is the same as, or obvious from the product of the prior art, even if the product of the prior art had been made by a different process. See *In re Thorpe, et al.*, No. 85-1913 (11-21-85) 227 USPQ pages 964 – 966. In this instance, the product of Ashelin et al, as modified by the TYVEK SoloFlo product pamphlet by DuPont, is considered the same, if not an obvious modification of the product of the claimed invention, since it meets all the structural limitations of the claimed invention/product (pleated filter cartridge) except for the process step of tack-point interconnecting of the mesh layer and the filter material prior to pleating.

30. With respect to claim 26, Ashelin et al, as modified by the TYVEK SoloFlo product pamphlet by DuPont, fails to disclose the mesh layer and the filter material being tack-point connected after pleating. Claim 26 is an example of a product by process claim. The patentability of the product by process claim is based upon the product itself, even though the claim is limited and defined by process, and therefore, the product in such a claim is unpatentable if it is the same as, or obvious from the product of the prior art, even if the product of the prior art had been made by a different process. See *In re Thorpe, et al.*, No. 85-1913 (11-21-85) 227 USPQ pages 964 – 966. In this instance, the product of Ashelin et al, as modified by the TYVEK SoloFlo product pamphlet by DuPont, is considered the same, if not an obvious modification of the product of the claimed invention, since it meets all the structural limitations of the claimed invention/product (pleated filter cartridge) except for the process step of tack-point interconnecting of the mesh layer and the filter material after pleating.

31. Concerning claim 27, Ashelin et al. as modified by the TYVEK SoloFlo product pamphlet by DuPont, fails to disclose the softening temperature range of the mesh layer being within the range of about 170 – 195° F. It is considered an inherent property of the LDPE used to form the mesh layer to have a softening temperature range below its melting point (which is known in the art to be around 200° F), that is below 200° F, which include those values within the range of about 170 – 195 ° F.

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32. Regarding claim 28, the DuPont product pamphlet also teaches the TYVEK SoloFlo filter material having a thickness of 5.1 mil (0.12954 mm), which is less than about 0.15 mm, as in pages 2 – 3.

33. Concerning claim 29, the DuPont product pamphlet teaches the thickness of the TYVEK SoloFlo filter material being 5.1 mil or 0.12954 mm, which is less than 0.13 mm, as in pages 2 – 3.

Conclusion

34. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patents 5,023,130 (Simpson), 3,169,899 (Steuber), 4,609,465 (Miller), 5,252,207 & 5,552,048 (Miller et al.), 6,034,008 (Lim et al.), 4,929,303 (Sheth), 3,570,675 (Pall), 6,046,118 (Jones) and 6,143,106 (Shane) and WO Publication 98/07905 (Marshall et al.).

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne S. Ocampo whose telephone number is (703) 305-1039. The examiner can normally be reached on Mondays to Fridays from 8:00 A.M. to 4:30 P.M..

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36. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on (703) 308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3599 for regular communications and (703) 872-9311 for After Final communications.

37. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

M.S.O.
June 26, 2001

M. Savage
MATTHEW O. SAVAGE
PRIMARY EXAMINER